ARCTIC OC
North Pole
Area of summer ice 2008
4.59 million square kilometers (1.77 million square miles)
Area of summer ice 1980
7.79 million square kilometers (3.01 million square miles)
Area of summer ice 2007
4.17 million square kilometers (1.61 million square miles)
RUSSIA
ALASKA (U.S.)
CANADA

Before You Read

A. Reading Maps. Look at the map of the Arctic. Use the information to complete the text below.

Rising temperatures can cause changes to our planet. These changes are most visible in the Arctic, where a large area of sea is usually covered by ice. In 1980, scientists recorded that the Arctic's sea ice in summer covered **1.** _____ million square kilometers (km²). By 2007, the area of sea ice had dropped to **2.** _____ million km². The ice came back a little (to 4.59 million km²) in **3.** _____. But by 2012, it had dropped even more, covering only 3.41 million km².

Discuss your answers with a partner. What do you think the map looks like now? What do you think it will look like in 2050?

B. Scan. The map above also shows the effects of global warming on great rivers of ice called *glaciers*. When the glaciers are warmed, they move and melt into the ocean. Scan pages 147–149. Find the names of two glaciers mentioned in the reading passage.

THE BIG THAW

1 The Chacaltaya ski area sits upon a small mountain glacier in Bolivia. Although the area is less than a kilometer long, it once **hosted** international ski competitions. In the past ten years, however, the snow has melted very quickly. As
5 Chacaltaya glacier melts, dark rocks are uncovered. These rocks **absorb** more heat, causing the snow to melt faster. The cycle seems **unstoppable** in the long run. Today, the snow is almost gone, and so are Chacaltaya's days as a popular ski resort.

10 A Global Problem

In recent years, scientists all around the world have come to a terrifying conclusion. Global warming is a real problem, and one largely caused by human activity. But as experts debate how to solve the problem, ice in mountains such as
15 Chacaltaya, and near the North and South Poles, is melting faster than even the most pessimistic[1] environmentalists once

^ A *thaw* happens when something frozen warms and melts. Most scientists agree global warming is causing the Earth's great areas of ice and snow to do just that.

1 Someone who is **pessimistic** thinks that bad things are going to happen.

feared. Ten years ago, scientists warned that the Arctic Ocean could lose all its ice in about a hundred years. Now, they think it could happen much sooner. As climate scientist Mark Serreze puts it, "Reality is **exceeding** expectations."

Glacier Run

The ice sheet of Greenland is also melting more quickly than scientists predicted. Its largest outlet glacier,[2] Jakobshavn Isbræ, is moving toward the sea faster than expected. In fact, the glacier is moving twice as fast as it was in 1995. Rising air and sea temperatures are two well-known causes. Researchers have also discovered other **unexpected** processes that cause them to melt faster. For instance, water from melting ice runs down **cracks** in the glacier and gets between the ice and the rock below. This makes it easier for the glacier to **slide** into the warmer sea water.

Some researchers believe that Greenland's melting, if it continues, could add at least a meter to global sea levels by 2100. If the ice sheet of Antarctica, now largely unaffected, begins to melt, the next few centuries could see at least a two-meter rise in sea levels, forcing tens of millions of people out of their homes.

Drying Out

While the melting of glaciers may flood some areas of the Earth, global warming is making the water disappear from other places. Many scientists think the glaciers of the Himalayas and the Andes could disappear in this century. As a result, millions of people in India, Bangladesh, Bolivia, and Peru who depend on water from mountain glaciers like Chacaltaya could find themselves in a **critical** situation. An increasing number of heat waves and droughts worldwide also suggests global warming is having an impact on humans right now, and that it could change the face of the world in the future.

How can we avoid these terrible **consequences**? "We have to have a serious and immediate **shift** in attitude," says Laurie David, a producer of the movie *An Inconvenient Truth*, which helped to raise awareness of the problem. Many believe that an attitude of hope and a desire to stay informed make a good beginning. As most would agree, an informed public is clearly in a better position to help address this critical issue.

2 An **outlet glacier** is a glacier that moves out from the edge of an ice sheet.

Overlooking the village of Ilulissat, the Jakobshavn glacier is slowly breaking apart, filling the ocean with huge pieces of ice.